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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,934	03/08/2002	Paul Averbach	018792-0199	7362
22428	7590	06/20/2006	EXAMINER	
FOLEY AND LARDNER LLP			SANG, HONG	
SUITE 500			ART UNIT	
3000 K STREET NW			PAPER NUMBER	
WASHINGTON, DC 20007			1643	

DATE MAILED: 06/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/092,934	AVERBACK, PAUL	
	Examiner	Art Unit	
	Hong Sang	1643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) 3,10-16,30,32-38 and 46 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,9,17-29,31,39-45 and 47-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>5/8/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

RE: Averbak

1. Applicant's response filed on 5/8/2006 is acknowledged. Claims 11, 15, 21-27, 30-32, 34, 37-40 and 44 are amended. New claims 47-51 are added. Claims 1-51 are pending. Claims 8, 10-16, 30, 32-38, and 46 are withdrawn.
2. Claims 1-7, 9, 17-29, 31, 39-45 and 47-51 are under examination.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. The information disclosure statement (IDS) filed on 5/8/06 has been considered. A signed copy is attached hereto.

Objections Withdrawn

5. The objection to claim 23 because it recites "SEQ ID NO 1" for AD7C-NTP is withdrawn in view of applicants' amendment to the claim.
6. The objection to the specification because the first line of the application should be updated to indicate the related applications is withdrawn in view of applicant's amendment to the specification.

Rejections Withdrawn

7. The rejection of claims 22 and 44 under 35 U.S.C. 112, second paragraph, as being indefinite for reciting the phrase "the NTP is part of a single new cloned

recombinant molecule consisting of NTP and a molecule" is withdrawn in view of applicant's amendment to claim 22.

The examiner notes that claim 44 is inadvertently included in this rejection; claims 40 and 45, which were inadvertently omitted, should be included in this rejection.

Response to Arguments

8. The rejection of claims 1-7, 9, 17-29, 31 and 39-45, and new claims 47-51 under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of treating a benign tumor, a malignant tumor, hyperplasia, hypertrophy, overgrowth of a tissue and malformation of a tissue in a patient requiring removal or destruction of cells comprising locally administering (e.g. topically, intratumorally) to a mammal in need a therapeutically effective amount of the neural thread protein consisting of SEQ ID NO. 10, does not reasonably provide enablement for a method of treating any and all conditions in a patient requiring removal or destruction of cells comprising systemically administering (e.g. intravenously, intra-arterially, intraperitoneally) to a mammal in need a therapeutically effective amount of any and all neural thread protein (NTP) as well as fragments, variant, derivative, homolog, reverse-D peptide, and enantiomers of NTP is maintained.

The response states that the claims are directed to treating a condition "requiring removal or destruction of cells" comprising administering "NTP" to a mammal. Conditions "requiring removal or destruction of cells" are well-known in the art, and the specification contains an extensive description of such conditions (pgs. 33-34).

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Similarly, NTPS are well known in the art, as discussed in the specification (see e.g., pgs. 5-6 and 9-11). Finally, the formulation of different dosage forms depending on the particular route of administration are known in the art (see e.g., pgs. 36-41). The prior art contains detailed teachings of NTP and how to make NTP, as summarized on pages 5-6 and 9-11 of the specification. Derivatives, variants, homologs, variants, and other forms of NTP that retain their biological activity can also be made using routine techniques well-known in the prior art (see e.g., 11-18). For example, conservative amino acid substitutions can be made to naturally occurring NTP such that the modified NTP retains biological activity. The specification contains an extensive description of how to make NTP and modified forms thereof with citations to relevant prior art references (see e.g., pgs. 19-32). Conditions requiring destruction or removal of cells are known in the art and include, for example, cancer, hyperplasia, unwanted hair, and warts (see e.g., pgs. 33-34). These conditions are well characterized and diagnostic methods are available to identify these conditions. Representative conditions are listed in the specification. The prior art also contains extensive teachings about how to make particular dosage forms depending on the desired routes of administration (see e.g., pgs. 36-41). These teachings include a description of how to conjugate active agents to other molecules to direct the active agents to a particular site, such as the site of tumor growth (see e.g., pgs. 34-36). For example, active ingredients can be conjugated to antibodies specific for tumor cells. By using site-specific conjugates, NTP can be administered systemically but still delivered to the site of the cells requiring removal or destruction. The specification describes various dosage forms, routes of administration

and methods of forming compositions comprising NTP, such as NTP-antibody conjugates (i.d.; pgs. 34-36). The specification does describe forming site-specific NTP compositions (pgs. 34-36), and the formation of site-specific compositions is known in the art. For example, chemotherapeutic agents can be delivered as conjugates to make the agents site specific. In addition, antibodies to NTP are known (pg. 10, (c)), and methods of making antibodies to specific targets are known in the art. Thus, the specification need not describe specific methods of making site-specific NTP conjugates, because a "patent need not teach, and preferably omits, what is well known in the art." MPEP §2164.01. Moreover, there is no evidence or explanation to suggest that NTPS other than the one tested would demonstrate a different activity. Because the PTO "has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention" and such a basis is lacking here, the claimed invention is enabled. Indeed, the activity of all NTPS would be expected to be similar based on its similar structure and activity in other contexts. One of skill in the art could make and use the invention using only routine experimentation. Indeed, the preparation methods and screening assays needed to practice the full scope of the invention are known in the art and described in the specification. Thus, a skilled artisan need only engage in routine experimentation to practice the full scope of the claimed invention.

Applicant's arguments have been carefully considered but are not found persuasive. The references presented by applicant are not sufficient to overcome the rejection. Claims are drawn to a method of treating a condition in a patient requiring

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removal or destruction of cells comprising administering to a mammal in need a therapeutically effective amount of a neural thread protein (NTP) as well as fragments, variant, derivative, homolog, reverse-D peptide, and enantiomers of NTP. As indicated in the previous office action mailed on 11/7/05, the condition to be treated encompasses any and all conditions including normal and diseased conditions that are caused by any pathogens, genetic mutations, injuries, etc. The method encompasses *in vivo* treatment by administering to a patient a NTP either systematically or locally. A neural thread protein NTP encompasses any and all NTPs including any and all proteins which share homology or function similarities with neuronal thread proteins either known in the art or yet to be discovered, any fragments, homologs, variants, derivatives, peptide mimetics, reverse-d peptides, and enantiomers thereof. The art only teaches a method of treating a benign or malignant tumor in a mammal comprising local administration of a therapeutically effective amount of a NTP-peptide selected from the group consisting of SEQ ID Nos: 23, 24, 25, 26, 28, 29, and 52 (see US Patent No. 6,924,266 B2, claims 4-7). The instant specification shows that acute necrosis of tissue (both normal tissue and tumor) can be induced by administration of AD7-NTP (SEQ ID NO. 10) at the sites of injection (see pages 45-46, Examples 2 and 3). The cytotoxic and necrotic effect of AD7C-NTP (SEQ ID NO. 10) is not cell selective or site selective, AD7C-NTP (SEQ ID NO. 10) is toxic to any type of cells that are in contact with it at the dose used in the specification. Neither the art nor the instant specification teach a method of treating any and all conditions in a patient requiring removal or destruction of cells comprising systemically administering to a mammal in need a therapeutically effective amount of

any and all neural thread protein including AD7C-NTP (SEQ ID NO. 10), and NTP disclosed in US Patent No. 6,924,266 B2. For example, it has not been shown by the prior art or the instant specification that administering NTP to AIDs patients, the infected T cells can be selectively removed or destructed without affect normal blood cells. It has not been shown by administering NTP systemically to bacterially infected patients, the bacteria can be selectively removed or destructed in the patients. Therefore, The specification has not enabled a method of treating the full scope of the condition that requiring removal or destruction of cells comprising administering any and all NTP systemically. The art and the instant specification have only enabled a method of treating tumor, hyperplasia, hypertrophy, overgrowth of tissue and malformation of tissue in a patient requiring removal or destruction of cells comprising administering locally to a mammal in need a therapeutically effective amount of certain NTPs. The specification does not provide guidance on how to administer any NTPs including AD7C-NTP (SEQ ID NO. 10) systemically, e.g. intra-arterially or intravenously without harming normal cells. While specification suggests using a conjugate of NTPs, wherein the NTPs are linked to a protein or other molecule, for *in vivo* delivery, the specification fails to teach how to make such conjugates that is tumor- or site specific and the activity of NTPs is shut down or inhibited during delivery and turned on only at required sites. The NTP protein is different from chemotherapeutic drugs, which effectively target fast-dividing cells. Tumours such as leukemia and lymphoma are more sensitive to chemotherapy. The instant specification does not teach that NTP is selective to any specific type of cells. Furthermore, the NTP encompasses fragments, homologs,

variants, derivatives, peptide mimetics, reverse-d peptides, and enantiomers thereof, while the specification teaches that conservative amino acid substitutions can be made to naturally occurring NTP such that the modified NTP retains biological activity, the specification fails to provide the guidance on how to make such broad class of molecules having the same function as the NTP of SEQ ID NO.10. The specification does not teach what the structural elements are required by the genus of the NTP proteins to perform the claimed function. Therefore, it would require undue experimentation for one skilled in the art to make and use the full scope of the NTP. Because of the reasons above, the rejection is proper and therefore is maintained.

9. The rejection of claims 17-19, 21, 22, 39-42 and 44-45 under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement is maintained.

The response states that the prior art contains extensive teachings of different forms of NTP, conditions requiring destruction or removal of cells, and methods of formulating and administering NTP. In addition, the prior art teaches how to form conjugates, such as active agent conjugated to an antibody or some other macromolecule. Thus, the specification need not describe specific NTP conjugates because a "patent need not teach, and preferably omits, what is well known in the art." MPEP § 2164.01. However, the specification need not enable such a feature because such a feature is not claimed nor is it required to use the claimed invention. Chemotherapeutic agents that are toxic to tissue other than just tumor tissue are routinely administered both locally and systemically. If systemically administered, they

can be delivered preferentially to the site of the tumor, such as by using a tumor-specific molecule. The NTP can be administered in the same way to practice the claimed invention. Thus, the NTP does not need to be "shut down" to practice the claimed invention. Moreover, there is no evidence or explanation to suggest that NTP conjugates would demonstrate a different activity. Indeed, conjugates are routinely made to deliver an agent to a specific location or to a particular class of cells. Because the PTO "has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention" and such a basis is lacking here, the claimed invention is enabled.

Applicant's arguments have been carefully considered but are not persuasive. The references presented by applicant are not sufficient to overcome the rejection. While the response states that one skilled in the art can make NTP protein conjugates using art known techniques, one do not know how to make the conjugates that have the claimed property. Claims 18 and 41 recite the limitation "the composition is cleaved at or near the sites of the tumor or other unwanted cells by a tumor- or site-specific enzyme or protease or by and antibody conjugate that targets or tumor or other unwanted cells and so release the NTP. However, the specification fails to teach how to make such NTP conjugates where NTPs are inactivated before reach the target site and activated only at site of a tumor or unwanted cells. The specification does not disclose the functional domain or region of the NTPs that needs to be inactivated or shielded. The prior art does not cure this deficiency. Moreover, the NTP protein is different from chemotherapeutic drugs, which effectively target fast-dividing cells. Tumours such as

leukemia and lymphoma are more sensitive to chemotherapy. The instant specification does not teach that NTP is selective to any specific type of cells. As such, it would require undue experimentation for one of skill in the art to perform the method of the claim as broadly written.

10. The rejection of claims 17-19, 21, 22, 39-42 and 44-45 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is maintained.

The response states that the specification describes the preparation of NTP conjugates, and proteins, molecules, dendrimers, fullerenes, polymers, macromolecules, antibodies, and antibody-like molecules suitable for use to make NTP conjugates are well known in the art, as discussed above. Accordingly, the specification contains a description of the claimed invention sufficient to demonstrate possession of the claimed invention to a skilled artisan. *Lilly* and the other cases cited are inapposite to the present case. The cited cases deal primarily with claims to DNA molecules or claims to compounds that were not known in the prior art. That is not the case here. Instead, species of the compounds deemed lacking support in the Office Action are widely known in the art. For example, polymers and antibodies for forming conjugates, such as tumor-specific drug conjugates, are known in the art. *Amgen Inc. v. Hoechst Marion Roussel*, 314 F.3d 1313, 1332 (Fed. Cir. 2003) considered a similar situation. *Amgen* distinguished *Lilly* and its progeny by noting that "the claim terms at issue here are not new or unknown biological materials that ordinarily skilled artisans would easily miscomprehend." *Amgen*, 314 F.3d at 1332. Thus, the claims were held to

be supported by the written description despite the lack of an extensive description of species. Like the claim terms at issue in *Amgen*, the present terms deemed objectionable in the Office Action are known in the art and need not be defined the with same specificity as previously unknown compounds. Thus, the claims are supported by the specification.

Applicant's arguments have been carefully considered but are not found persuasive. Lilli and other case laws cited in the previous office action are indeed applicable to this case. The Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, ¶ 1 "Written Description" Requirement make clear that the written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species by actual reduction to practice, reduction to drawings, or by disclosure of relevant, identifying characteristics, i.e., structure or other physical and or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the genus (Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001, see especially page 1106 3rd column). The instant claims recite "NTP, conjugated, linked, or bound to a protein, a molecule, dendrimers, fullerenes, synthetic molecules, polymers and macromolecules, and antibody-like molecules", and "the NTP composition is cleaved at or near the sites of tumor or other unwanted cells by a tumor- or site-specific enzyme or protease, or by an antibody conjugate that targets tumor or other unwanted cells and so release the NTP". There is a lack of a written description

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regarding a protein, a molecule, dendrimers, fullerenes, synthetic molecules, polymers, macromolecules, antibody-like molecules” and “tumor- or site-specific enzyme or protease or antibody conjugate”. These molecules encompass art known as well as new and unidentified molecules. Applicant has not provided sufficient descriptive information such as definitive structural or functional features that are common to the genus of molecules claimed. Because the genus of molecules encompassed by “a protein, a molecule, dendrimers, fullerenes, synthetic molecules, polymers, macromolecules, antibody-like molecules” and “tumor- or site-specific enzyme or protease or antibody conjugate” is extensive and the artisan cannot envision the detailed structure of the encompassed molecules. Thus one of skill in the art would not be able to recognize that applicant was in possession of the invention as now claimed.

11. The rejection of Claims 23-29, 31 and 39-45, and new claims 47, 49-51 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is maintained.

The response states that the specification contains an extensive description of NTPS, including a variety of specific sequences and references to scientific literature describing NTP (see e.g., pgs. 9-11). For example, Figures 1-9 each list an example of a specific NTP. This description is supplemented by an entire section describing the preparation of NTP, including fragments, homologs, variants, derivatives, peptide mimetics, reverse-D peptides, and enantiomers of NTP (pgs. 19-32). The

preparation of modified forms of NTP is also defined with reference to scientific references to further assist one of skill in the art (i.d., pgs. 11-18). For example, the specification describes peptide mimetics and cites to scientific references, which describe in greater detail the preparation of peptide mimetics. Based on this extensive description, one of skill in the art would readily understand Applicant to be in possession of the claimed invention. Indeed, the description of specific NTP species coupled with detailed descriptions methodologies evinces possession of the claimed invention. For example, a skilled artisan could compare the specific sequences to determine conserved regions and based on these results make conservative or non-conservative amino acid substitutions, which are described in Tables I and 11, to form modified forms of NTP. Fragments could also be routinely made and screened for biological activity using the methods defined in the specification, including the working examples. Accordingly, the claims are fully supported by the application as filed.

Applicant's arguments have been carefully considered but are not found persuasive. The Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, ¶ 1 "Written Description" Requirement make clear that the written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species by actual reduction to practice, reduction to drawings, or by disclosure of relevant, identifying characteristics, i.e., structure or other physical and or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in

possession of the genus (Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001, see especially page 1106 3rd column). Applicants broadly claim a method of claim 1, wherein said NTP comprises any fragments, homologs, variants, derivatives, peptide mimetics, reverse-D peptides, and enantiomers thereof. Although the instant specification teaches a general method for making peptide mimetics, homologs, variants, etc., it fails to provide information regarding the structures of any fragments, homologs, variants, derivatives, peptide mimetics, reverse-D peptides, and enantiomers, that is correlating with the claimed function, i.e. capable of removing or destruction of cells. The specification provides neither a representative number of fragments, homologs, variants, derivatives, peptide mimetics, reverse-D peptides, and enantiomers of nor does it provide a description of structural and functional features that are common to the fragments, homologs, variants, derivatives, peptide mimetics, reverse-D peptides, and enantiomers of the SEQ ID NO.10. Since the disclosure fails to describe the common attributes or characteristics that identify members of the genus, and because the genus is highly variant, the disclosure of the specific species of genus is insufficient to describe the genus. Thus, one of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of species to describe and enable the genus as broadly claimed.

12. The rejection of claims 1-7 and 9, and new claims 47, 49-51 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 4-7 of U.S. Patent No. 6,924,266B2 is maintained.

The response states that the '266 patent claims a "method of treating a benign or malignant tumor in a mammal comprising local administration of a therapeutically effective amount" of one of the specifically defined NTPS recited in claim 1 . Based on this disclosure, one of skill in the art could not extrapolate that NTPS in general could be used to treat "a condition in a patient requiring removal or destruction of cells," as claimed. Indeed, agents for the treatment of tumors do not necessarily treat all conditions requiring removal or destruction of cells. Applicant notes that the disclosure of the '266 patent cannot be used to find the presently claimed invention obvious over the claims of the '266 patent.

Applicant's arguments have been carefully considered but are not found persuasive. Claims 4-7 of U.S. Patent NO. 6,924,266B2 are drawn to a method of treating a benign or malignant tumor in a patient comprising local administration of a therapeutically effective amount of a NTP-peptide consisting of SEQ ID Nos: 23-26, 28, 29 and 52. Because the SEQ ID Nos 23-26, 28, 29 and 52 recited in '266 patent are species of the instantly claimed genus of NTP protein, the tumor of '266 patent is a species of the genus of condition that is claimed in the instant application, and the active steps of the instant claims comprise only administering an effective amount of NTP to a mammal, therefore, claims 4-7 of U.S. Patent NO. 6,924,266B2 anticipate instant claims 1-7, 9, 47, and 49-51.

13. The provisionally rejection of claims 1-7 and 9, and new claims 47, 49-51 under the judicially created doctrine of obviousness-type double patenting as being

unpatentable over claims 12-16 and 18 of copending Application No. 10/294,891 and claims 9-13 and 15 of copending Application No. 10/920,313.

The response states that applicant will address the rejection on the merits if it ever matures into a non-provisional rejection.

Applicant's response is acknowledged. Since the applicant has not addressed the rejection, the rejection is therefore maintained.

Conclusion

14. No claims are allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong Sang whose telephone number is (571) 272 8145. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry R. Helms can be reached on (571) 272-0832. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LARRY R. HELMS, PH.D.
SUPERVISORY PATENT EXAMINER

Hong Sang
Art Unit 1643
June 2, 2006